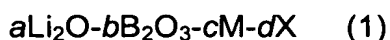


What is claimed is:

1. A solid electrolyte comprising a composition represented by Formula 1 below:



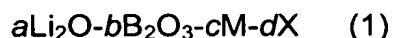
wherein M is at least one selected from the group consisting of  $\text{TiO}_2$ ,  $\text{V}_2\text{O}_5$ ,  $\text{WO}_3$ , and  $\text{Ta}_2\text{O}_5$ ;

X is at least one selected from LiCl and  $\text{Li}_2\text{SO}_4$ ;

$0.4 < a < 0.55$ ;  $0.4 < b < 0.55$ ;  $0.02 < c < 0.05$ ;  $a+b+c=1$ , and  $0 \leq d < 0.2$ .

2. The solid electrolyte according to claim 1, wherein  $a$  is in the range of 0.45 to 0.52,  $b$  is in the range of 0.45 to 0.52,  $c$  is in the range of 0.03 to 0.04, and  $d$  is in the range of 0.001 to 0.15.

3. A method for preparing a solid electrolyte comprising a composition represented by Formula 1 below:



wherein M is at least one selected from the group consisting of  $\text{TiO}_2$ ,  $\text{V}_2\text{O}_5$ ,  $\text{WO}_3$ , and  $\text{Ta}_2\text{O}_5$ ;

X is at least one selected from LiCl and  $\text{Li}_2\text{SO}_4$ ;

$0.4 < a < 0.55$ ;  $0.4 < b < 0.55$ ;  $0.02 < c < 0.05$ ;  $a+b+c=1$ , and  $0 \leq d < 0.2$ ,

the method comprising:

(a) mixing a  $\text{Li}_2\text{O}$  precursor compound;  $\text{B}_2\text{O}_3$ ; and at least one compound selected from the group consisting of  $\text{TiO}_2$ ,  $\text{V}_2\text{O}_5$ ,  $\text{WO}_3$ , and  $\text{Ta}_2\text{O}_5$ , followed by milling;

(b) heating the resultant powder mixture so that the  $\text{Li}_2\text{O}$  precursor compound is thermally decomposed into  $\text{Li}_2\text{O}$ ;

(c) heating the resultant mixture to obtain a uniformly molten glass; and

(d) quenching the molten glass to obtain a glassy solid electrolyte.

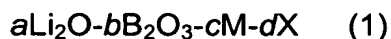
4. The method according to claim 3, further comprising adding at least one selected from LiCl and  $\text{Li}_2\text{SO}_4$  to the mixture of step (a).

5. The method according to claim 3, wherein in step (b),  $\text{Li}_2\text{O}$  is decomposed from the  $\text{Li}_2\text{O}$  precursor compound at a temperature of 600 to 800°C.

6. The method according to claim 3, wherein in step (c), the molten glass is obtained at a temperature of 900 to 1,500 °C.

7. The method according to claim 3, wherein in step (d), the molten glass is quenched at a temperature of 0 to 25 °C.

8. A lithium battery using a solid electrolyte comprising a composition represented by Formula 1 below:

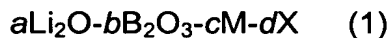


wherein M is at least one selected from the group consisting of  $\text{TiO}_2$ ,  $\text{V}_2\text{O}_5$ ,  $\text{WO}_3$ , and  $\text{Ta}_2\text{O}_5$ ;

X is at least one selected from LiCl and  $\text{Li}_2\text{SO}_4$ ;

$0.4 < a < 0.55$ ;  $0.4 < b < 0.55$ ;  $0.02 < c < 0.05$ ;  $a+b+c=1$ , and  $0 \leq d < 0.2$ .

9. A thin film battery using a solid electrolyte comprising a composition represented by Formula 1 below:



wherein M is at least one selected from the group consisting of  $\text{TiO}_2$ ,  $\text{V}_2\text{O}_5$ ,  $\text{WO}_3$ , and  $\text{Ta}_2\text{O}_5$ ;

X is at least one selected from LiCl and  $\text{Li}_2\text{SO}_4$ ;

$0.4 < a < 0.55$ ;  $0.4 < b < 0.55$ ;  $0.02 < c < 0.05$ ;  $a+b+c=1$ , and  $0 \leq d < 0.2$ .